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Strategic leadership will be essential for dietitian eHealth readiness: A qualitative study exploring dietitian perspectives of eHealth readiness

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Abstract

Aim: To explore dietitians' perspectives on the eHealth readiness of Australian dietitians, and to identify strategies to improve eHealth readiness of the profession.

Methods: Dietitians who met the criteria for nutrition informatics experts participated in semi-structured interviews between June 2016 and March 2017. The interviews were recorded and transcribed verbatim. Thematic analysis using coding was undertaken until consensus was reached by the researchers regarding key themes, topics and exemplar quotes.

Results: Interviews with 10 nutrition informatics experts revealed 25 discussion topics grouped into four main themes: benefits of eHealth for dietitians; risks of dietitians not being involved in eHealth; dietitians are not ready for eHealth; and strategies to improve eHealth readiness. The strategies identified for improving eHealth readiness included: collaboration and representation, education, offering of incentives and mentoring, as well as development of a national strategy, organisational leaders, nutrition informatics champions and a supportive environment.

Conclusions: These findings suggest that dietitians may not be ready for eHealth. Strategic leadership and the actioning of other identified strategies will be imperative to preparing dietitians for eHealth to ensure the profession can practice effectively in the digital age, optimise nutrition care and support research for eHealth. If dietitians do not engage in eHealth, others may take their place, or dietitians may be forced to use eHealth in ways that are not the most effective for practice or maximising patient outcomes.

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Key words: dietitian, nutrition informatics, health information technology, eHealth.

INTRODUCTION

The complexity of modern healthcare, combined with the growing legislative requirements of healthcare organisations and the increasing demands of client expectations, make the delivery of health services to patients difficult without the support of technology.¹⁻³ The sheer volume of information and medical knowledge within a healthcare environment can no longer be safely or efficiently contained within the minds of staff and paper records.^{1, 4} eHealth is an umbrella term referring to all electronic processes and communication that support or enable healthcare practices,⁵

and is now accepted as integral in improving healthcare delivery, patient safety, efficiency, clinical decision-making, curtailing increasing healthcare costs, supporting research and ultimately enhancing patient care.^{2, 3, 6-9} eHealth encompasses (but is not limited to) electronic health records (EHR), telehealth, mobile health applications (mHealth), clinical information systems, and standardised terminology (eg. Nutrition Care Process Terminology (NCPT)) for example.¹⁰⁻¹²

Realising the benefits of eHealth however, is complex and requires professional readiness to successfully guide the development, selection and implementation of eHealth solutions.^{1, 13, 14} eHealth solutions are not without risk, and without the right solution and clinical engagement, the costs (both financially and patient-related) can be significant, marginalising quality and safety.^{2, 3, 7, 15, 16} eHealth readiness means the preparedness of healthcare organisations, societies, or a profession, for the expected change caused by plans associated with a eHealth solution.^{17, 18} The assessment of readiness for a healthcare innovation, and the readiness for change, has been demonstrated to reduce the risk of failure after introduction.¹⁹⁻²¹

Nutrition informatics, as a subsection of eHealth is defined as ‘The effective retrieval, organisation, storage and optimum use of information, data and knowledge for food and nutrition-related problem solving and decision-making. Informatics is supported by the use of information standards, processes and technology’.²² The integration of eHealth, and specifically nutrition informatics, will inevitably impact dietetic practice, but the level and quality of dietitian engagement will determine whether the outcomes for both dietitians and their patients are positive in relation to improving nutrition care. However, there is a paucity of literature on the eHealth readiness of allied health professionals (including dietitians), as well frameworks or tools on how to measure eHealth readiness.^{23, 24}

In order to investigate eHealth readiness of dietitians, our team has used a mixed-methods approach across three phases, investigating from several perspectives. The first phase involved the development of a framework for assessing eHealth readiness through a systematic literature review and semi-structured interviews (using both a quantitative

and qualitative approach).²⁵ The second phase was the analysis of Australian dietitian eHealth readiness through national surveys and a cross-sectional analysis (using a quantitative approach).^{23, 24} The final phase reported here, used a qualitative approach to explore dietitian perspectives on eHealth readiness and to identify strategies for improving the readiness of the profession.

The first phase revealed there were no guiding theories or frameworks to determine the eHealth readiness of dietitians within the literature. Therefore we utilised an inductive approach to develop a Framework for eHealth Readiness of Dietitians (FeRD), which encompasses five key eHealth readiness dimensions: *access, standards, attitude, aptitude* and *advocacy*.²⁵ The FeRD builds on existing theories and models, and provides a conceptual model for developing eHealth readiness evaluation tools to examine, measure and drive strategies to better prepare dietitians for eHealth. In addition, it provided a framework to analyse and report on the next phase of the research.

The national surveys, forming the second phase, provided baseline data and an indicative trend of dietitian eHealth readiness. The findings demonstrated a moderate level of eHealth readiness by Australian dietitians, with minimal improvement between 2013 and 2016 (survey periods).^{23, 24} The key dimensions identified for improvement were attitude (awareness of the broader benefits of eHealth, such as improving patient safety and quality of care and reducing medical errors); aptitude (in terms of low levels of experience with eHealth initiatives); and advocacy (area requiring the most improvement, with minimal involvement with eHealth initiatives). The barriers remained consistent over time, with the top three (employer issues, technology issues and training issues) being reported by respondents.^{23, 24}

Given the limited improvements in eHealth readiness of dietitians, we endeavoured to investigate the perspectives of dietitians to determine if they could provide specific direction on strategies to assist further progression. Specifically, this research (phase 3), aimed to explore the areas identified for improvement in the national surveys. We used in-depth interviews to investigate nutrition informatics experts' perspectives of eHealth

and eHealth readiness, and identify strategies to strengthen the capacity of all dietitians to lead eHealth initiatives and effectively drive successful nutrition-related eHealth implementations.

METHODS

A post-positivist approach was adopted for this qualitative study to elaborate on the key areas for development identified in the national surveys,^{23, 24} through semi-structured interviews with nutrition informatics experts. A purposive and ‘snowballing’ sampling technique was used to select participants with expertise in the field of nutrition informatics and to ensure representation across a variety of practice areas.²⁶ The selection of dietitian nutrition informatics expert participants was based on meeting at least one of four inclusion criteria: 1. experience with an eHealth implementation; 2. research and publication on eHealth solutions for dietitians; 3. role at a national level as an advocate for eHealth for dietitians; or 4. holding the credential of Certified Health Informatician Australasia (CHIA). The interviews were conducted between June 2016 and March 2017 by the primary researcher, face-to-face or over the phone, and were digitally recorded. The interviews were transcribed verbatim by the same researcher. Ethics approval was granted (HE16/202) by the [removed for blind peer review] Human Research Ethics Committee.

The interview questions were developed based on the gaps identified in the surveys. Namely, to specifically address the lack of awareness of the broader eHealth benefits, low levels of experience, and minimal involvement in eHealth initiatives by dietitians, in order to generate practical strategies to improve dietitian eHealth readiness. Ten questions were developed relating to the nutrition informatics expert’s perceptions on the benefits of eHealth; risks of not being involved; dietitian eHealth readiness; reasons for lack of dietetic engagement in eHealth projects; the impact dietitian involvement has on eHealth projects; and ways dietitian engagement could be improved. The questions were piloted with two dietitians, with some minor modifications made to reduce duplication in responses.

Initial coding of the data was performed with the assistance of QSR NVivo 11 Pro (v11.0.0.317) qualitative analysis software. The transcripts were read and re-read to gain a comprehensive overview of the opinions and perceptions expressed by the participants. Thematic analysis²⁷ was conducted and two researchers (including the primary researcher) independently reviewed each line of data to identify key words and phrases to describe the opinions of participants. The text was labelled as an open code and then once the transcript was coded, all codes were grouped into categories of similar concepts. Whilst a “bottom-up” approach to the thematic analysis was adopted, the concepts from the first two research phases guided the development of the interview questions, and therefore the resulting codes could be considered to have been a combination of an inductive and deductive approach.²⁸ The codes and concepts were then discussed by the researchers until consensus was reached on the topics and key themes emerging from the data. The data coding was reviewed with the agreed themes and a selection of exemplar quotes identified to illustrate these themes and topics.²⁹

RESULTS

Ten dietitians who met the criteria of a nutrition informatics expert participated in this study. Practice areas represented included: hospital (management, clinical and foodservices) (n=5), university or research (n=2), Government (n=1), private practice (n=1) and industry (n=1). Females represented 80% (n=8) of the respondents and is reflective of the gender ratios within the profession.³⁰ The interviews lasted up to fifty minutes, with eight face-to-face and two telephone interviews. Although common themes were emerging after five interviews, additional interviews were conducted to gather nuances associated with the themes, and to ensure we revealed topics and themes across all practice areas and individual perspectives.

The data analysis identified 25 topics which formed four key themes, namely: benefits of eHealth for dietitians; risks of dietitians not being involved in eHealth; dietitians are not ready for eHealth; and improving eHealth readiness strategies (Table 1). Exemplar quotes were identified for each of the topics (Table 1).

Theme 1: Benefits of eHealth for dietitians

The benefits of eHealth to dietitians were clearly articulated. The responses identified the same topics outlined in the eHealth readiness survey relating to the benefits of eHealth for dietitians, including access to information, accuracy and safety, consumer access to healthcare, data analytics and efficiency.^{23, 24} One quote encompassed several of the benefits in one response: *“By using the data you can get out of an eHealth system to actually drive decision making processes around models of care. So I would be saying we are collecting a lot of data through eHealth, all sorts of dietitian specific and health specific, you could bring it together to inform how we deploy the workforce, looking for where our best bang for the buck is in terms of patient outcomes, because there is little health dollar...and I think we need to be smart about how and where we deploy staff, and so eHealth is a way that we can start to make those decisions. For example, we did this particular model of care and this was the outcome for the patient”* (Interview 6, Hospital setting).

Theme 2: Risks of dietitians not being involved in eHealth

The risks to dietitians not being involved in eHealth extend beyond just missing the benefits. The topics identified during the interviews also outlined the potential for clinical risk, which is a possibility if solutions for dietitians are developed by those without the nutrition expertise. The management of diet restrictions and allergies in hospital patients for example, need to be accurately linked to the corresponding codes in order for hospital interfaces to be safe and reliable (Interview 9, Private Practice setting). A similar topic identified was systems not suited to the professions' requirements, meaning if dietitians are not involved in the development of an eHealth solution, it may not end up including the key fields and processes required to support dietetic practice, and consequently will not be adopted by dietitians. The ultimate risk, however, is dietitians *“will become obsolete”* (Interview 5, Government setting), with others claiming authority in the nutrition space.

Theme 3: Dietitians are not ready for eHealth

Dietitians are not ready for eHealth was a consistent theme arising from the interviews with eight topics revealed contributing to this belief. The topics identify barriers to

dietitian eHealth readiness, including dietitians' lack of knowledge, awareness, confidence and informatics expertise in relation to eHealth that was most often discussed. It was identified that eHealth projects are often challenging and difficult to engage in, with the terminology and processes foreign to a dietitian, so they are *"getting dragged along with what the organisation is doing"* (Interview 4, Hospital setting) due to their lack of informatics expertise, rather than confidently driving clear nutrition-related solutions. In addition, the importance of a fine balance was highlighted, *"balance between collecting data for research purposes and having a system that promotes good workflow and good communication... because it's very easy to create for example a progress note that is a blank page and that's the electronic equivalent to the patient paper note, but that doesn't give you any of the added benefit that eHealth provides"* (Interview 6, Hospital setting). This quote provides a clear example supporting the need for someone with informatics skills and experience.

There was frustration with the current lack of progress across the profession, passive engagement, and lack of national support and strategy for moving the profession forward. A quote from one of the participants: *"We need to move forward as a group and we need to move forward with I guess a united idea of what this concept is and clearly that's not happening"* (Interview 7, University/Research setting).

Theme 4: Improving eHealth readiness strategies

Eight strategies were identified to improve eHealth readiness: collaboration, incentives, education, mentoring, national strategy, leaders, champions, and supportive environment. Many of these strategies were related to leadership: collaboration and representation; organisational leaders and nutrition informatics champions.

Collaboration and representation recommendations were reported on a multitude of levels, starting from individual organisations, to state-wide, to national and international opportunities, whereas the other two topics related more to individual leadership attributes. For the strategy of organisational leadership, it was suggested that this could be fulfilled by those already in a position of leadership, or alternatively it may require a dedicated position. *"It may need a dedicated project type role, where it would be a key strategy of the organisation to further develop and once that interest is created I suspect*

1 *a higher uptake of interested parties can then have a snowball effect and move the*
 2 *profession forward*” (Interview 1, Hospital setting). Supporting the suggestion of
 3 nutrition informatics champions were the following quotes: *“Have some sort of group*
 4 *or a group that can show leadership and start to drive the process and upskill people*
 5 *and start to really inspire people who don't necessarily don't want to lead, but who are*
 6 *interested in the area and that tiny bit of interest is all we need to start the ball rolling*
 7 *and get others on board*” (Interview 7, University/Research setting). *“I do think*
 8 *champions are helpful, the thing I think are helpful about champions is almost a pure*
 9 *sales approach if I can say, so the champions themselves have been upskilled, but after*
 10 *a couple of years need a rest, but I think they can be a buddy or guide to the next*
 11 *generation of champions. So if any one of them could then be a support for several*
 12 *other newer people coming on board, then 10 becomes 100 becomes 1000 in no time at*
 13 *all if we use that type of approach. I think that supportive model could be very strong*
 14 *and very valuable*” (Interview 3, University/Research setting).

15
 16 Education and mentoring were highlighted in regard to creating opportunities for
 17 eHealth awareness raising and exposure. The need for a national strategy with *“simple*
 18 *messages, and consistent hammering of those key areas*” (Interview 5, Government
 19 setting) to members, and an action plan to *“influence at a national commonwealth level”*
 20 (Interview 5, Government setting) eHealth standards and policies. Also raised was the
 21 need to create an *‘impetus to get over the hurdle for the profession to move forward’*
 22 (Interview 1, Hospital setting), and an *‘incentive’* (Interview 8, Hospital setting) for
 23 individuals to get involved. A supportive or enabling environment to enable the co-
 24 ordination of the effort required for the profession in this space, *‘with everyone working*
 25 *together to achieve these goals’* (Interview 3, University/Research setting).

26
 27 The participants suggested many strategies for improving eHealth readiness. However,
 28 when prompted they found it difficult to identify who, and how these strategies could be
 29 co-ordinated and actioned. Primarily the Dietitians Association of Australia (DAA) and
 30 universities were identified as having key roles in assisting with providing education to
 31 increase awareness of eHealth, to provide incentives, develop a national strategy, and to
 32 provide a supportive environment. To quote: *“I think that Universities certainly have a*

role for the future graduates – talk about eHealth, what it is, how it fits in, and it's more than just EMR or nutrition support software that you might use in your workplace. I think DAA have a role to play here to actually educate, promote and assist dietitians to become better informed about eHealth, what eHealth is, how it impacts us and what the risks are of not embracing it as a profession” (Interview 9, Private Practice setting).

DISCUSSION

This research explored the perceived eHealth readiness of dietitians through interviews with nutrition informatics expert. Twenty five topics were identified, forming four key themes, with similar responses and perspectives being reported by all the participants. There was agreement that there were benefits to dietitians in using eHealth, as well as risks of dietitians not being involved. However, there was frustration with the current lack of progress across the profession, and overwhelming consensus that dietitians were not yet ready for eHealth. This supports the findings of the eHealth readiness study.^{23, 24} Eight key strategies on how to improve dietitian readiness for eHealth were also identified.

The benefits identified during the interviews were comprehensive and reflect commonly reported key eHealth benefits, all of which contribute to the ultimate goal of eHealth: to improve the quality of healthcare delivery.³¹⁻³³ The achievement of this goal in dietetics has demonstrated improvements in the consolidation and reconciliation of patient information (including the incorporation of data standards),³⁴⁻³⁶ accuracy and safety;²⁴ efficiencies;^{34, 36-38} and patient nutrition outcomes.^{35, 39} Nutrition focused studies have also demonstrated efficiencies gained through eHealth which can contribute to cost savings,^{34, 35} or allow for increased time to be devoted to direct patient care and enhancing the care experience for patients and healthcare providers.⁴⁰ Telehealth and mobile health apps (mHealth) can support dietitians to provide patient access to nutrition care, enabling healthcare information to be obtained at the right place and right time, irrespective of socioeconomic status and physical location.^{31, 41}

The risks of dietitians not being involved in eHealth became the second theme, which like benefits, are an important part of this discussion.⁴² Whilst the benefits can form

1 positive messages to promote the importance of eHealth readiness to the profession,
2 presenting the risks has the potential to create a strong incentive to the profession to
3 become more aware and involved. It was reported that dietitians will miss out on the
4 benefits eHealth offers, potentially introducing or fostering clinical risk, and ultimately
5 becoming irrelevant; even losing their professional domain. This is an issue in social
6 media which has recently been flagged anecdotally as a significant risk to the
7 profession; the uprising of the non-nutrition professionals providing nutrition
8 information and advice to the general public. The DAA and other dietetic professional
9 groups and individuals, in response to the rise of the non-nutrition professionals, have
10 actively campaigned to promote the role of the professional nutrition expert throughout
11 social media.

12
13 There were strong opinions relating to the theme that dietitians are not ready for
14 eHealth, and several potential barriers for this identified. These reasons should be taken
15 into consideration and targeted when developing the strategies to address dietitian
16 eHealth readiness. For example, how can we leverage the younger generations'
17 knowledge and confidence with technology to improve the professions interest and
18 enthusiasm for eHealth? Dietitians are not aware of the benefits of these solutions, the
19 risks of not being involved,^{23, 24} and consequently are not confident to lead opportunities
20 related to nutrition eHealth initiatives.

21
22 The fourth and final theme encompassed the strategies for improving eHealth readiness
23 amongst the profession. This area is challenging, with no previous framework to guide
24 the profession and insufficient investment in reflecting on our limited experiences, to
25 identify how we can do better moving forward.²⁵ The need for strong and active
26 leadership is clearly an essential ingredient for eHealth advancement and one key area
27 where the profession is lagging,^{23, 24} and several ideas on the types of leadership
28 required were discussed. A systematic literature review by Ingebrigtsen et al (2014)
29 revealed a moderate level of evidence that clinical leaders who have technical skills and
30 experience with eHealth project management are instrumental in the successful adoption
31 of eHealth.¹³ The attributes of these clinical leaders suggest they are likely to develop a
32 long-term vision, motivate and foster the necessary IT competencies, establish

partnerships with IT representatives, can maintain confidence and stability through the adversities that these projects often entail, and are consequently associated with successful organisational and clinical outcomes through eHealth initiatives.¹³

The importance of greater collaboration and engagement by dietitians as part of the development and implementation process of eHealth solutions has also been identified in research studies, and in particular in several with nutrition focus.^{38, 41, 43} Chen et al's (2017) research on designing mHealth apps to support dietetic practice, concluded that it was critical for dietitians and the app developer to collaborate in order to achieve dietitian and patient-centred app designs.⁴¹ During the development of an eHealth solution for dietitians, Mirtallo et al (2009) report that dietitians were consulted, and ultimately ensured optimised nutrition care functionality.⁴³

Some topics related to strategies that did not arise in the interviews included competency standards for dietitians and health (or specifically nutrition) informatics certifications. Ayres et al (2012) from the Academy of Nutrition and Dietetics identified that whilst other professions had addressed informatics competencies at different levels of practice, the dietetics profession had not.⁴⁴ The Academy defined informatics competencies of dietitians, and determined the assignment of each competency to the appropriate level of practice (based on the six levels of practice from the Academy's Career Development Guide).⁴⁴ In addition, within the topic of 'collaboration and representation', no key eHealth organisations were mentioned, such as HL7, HIMSS or the Digital Health Agency. Similarly none of the respondents identified the importance of ensuring dietitian involvement in national eHealth policy and standards; ensuring nutrition is incorporated as part of regulation and policy and to ensure interoperability. Another possible strategy that was not identified during the interviews is the support and encouragement of research contributing to the evidence of nutrition informatics benefits for patient nutrition care, as well as the development of best practice criteria for nutrition eHealth selection and use as a potential important focus for the coming years.^{45, 46}

As with any semi-structured interviews, a limitation is the risk that participants may not reveal all of their true opinions as they may wish to please the interviewer. This method was specifically chosen over focus groups for example, as there is the risk that the responses may be influenced by a dominant view, and alternate views may be less accepted or possibly not externalised.⁴⁷ In addition, the participants represented experienced practitioners and experts in this field, so were more likely to feel confident and comfortable with their opinions and responses than the general dietetics population. It should also be noted, as there were a limited number of interviewees, the comments can't be taken to represent the views of all practitioners in each of these practice areas, and so consideration should focus on the common themes that emerged from the participants.

When the three phases of this research were considered as a whole using triangulation methodology, a significant finding was the complexity of eHealth readiness, and the lack of understanding of what readiness entails by the profession. This may be the key issue and the first place for the profession to focus eHealth awareness efforts. It appears that understanding of readiness is limited to personal experience (and unfortunately dietetic experience in eHealth is very low), and therefore is often assumed to be made up only of attitude and aptitude. Dietitians' high confidence and experience in using computers, may be creating their belief that they are ready for eHealth, when in fact they are not (when all FeRD dimensions of readiness are assessed).²⁵ It is this belief, and the idea that simply raising awareness will be sufficient to prepare those that are not ready, that is placing the profession in danger of being complacent and missing the opportunities eHealth will facilitate. Additional implications of dietitians not being prepared for eHealth are that others may take their place, or dietitians may be forced to use eHealth in ways that are not the most effective for practice or maximising patient outcomes.

There is an opportunity to embrace this knowledge, and for dietitians to demonstrate they are the clinical leaders for nutrition, and ensure they are driving the eHealth solutions for nutrition care, rather than financiers or technologists. Whilst achieving the benefits of eHealth will be complex, collaboration across the profession is key, with a

number of strategies imperative to prepare dietitians for eHealth, and ensure the profession can practice effectively in the digital age, optimise nutrition care and support research for eHealth. These strategies include developing a national strategic plan; enhancing university training and graduate competency; engaging and collaborating with external organisations to ensure inclusion and interoperability (incorporated into standards and policy); utilising the skills and expertise across the practice areas to identify champions and leaders; embracing those with experience; and drawing on the varying expertise demonstrated by the different generations.

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Table 1: Key themes, topics and exemplar quotes for the interview transcripts.

Themes	Topics	Quotes (Interviewee, Practice area/setting)
1. Benefits of eHealth to dietitians	Access to information	<i>'So eHealth makes it easy to access information that is going to help you inform your care plan. The benefit of that is you have more co-ordinated integrated care for the patient which would drive better patient outcomes.'</i> (Interview 6, Hospital)
	Accuracy and safety	<i>'I think there is a lot of potential for safety built into it in a much more effective way than what happens in a paper record for example.'</i> (Interview 3, University/Research)
	Consumer access to healthcare	<i>'Keeping up-to-date with what consumers are accessing and what patients (our consumers) are accessing, and providing services to patients in different forms other than traditional face-to-face form to enable a broader reach and I guess meeting patients and consumer needs and ultimately satisfaction.'</i> (Interview 4, Hospital)
	Data analytics	<i>'It can help us target our service because it can provide information that will change your service delivery as a result of analysing larger pieces of data.'</i> (Interview 1, Hospital)
	Efficiency	<i>'The immediacy of access, so not just the waiting time, but no matter where you are you can find them, access them, many people can be using it at the same time.'</i> (Interview 3, University/Research)
2. Risks of dietitians not being involved in eHealth	Clinical risk	<i>'I think you can have some clinical risks and you know we've seen that in some of our hospitals.'</i> (Interview 8, Hospital)
	Lose professional domain	<i>'I think dietitians risk being left behind, becoming out of touch, and being seen as redundant. A rise in other nutrition professionals, or professionals claiming to have nutrition qualifications and training, and being better at using certain aspects of eHealth and promoting themselves.'</i> (Interview 9, Private Practice)
	Miss the benefits	<i>'Well, as a profession we won't get the benefits, we won't get the initiatives, we won't get innovation. We would possibly be lost and swamped by a multiple other professions who will ultimately leverage off that data and leverage off the opportunities to change and grow and capture that patient interest in the sense of healthcare...'</i> (Interview 1, Hospital)
	Systems not suited to professions' requirements	<i>'I think that's the biggest risk, decisions are going to be made without them, systems are going to be built that don't require a dietitian, and some EMRs [electronic medical records] can be completely setup to not require dietitian involvement.'</i> (Interview 2, Industry)
3. Dietitians are	Disconnect between IT	<i>'So, I think that lack of a link, or lack of</i>

not ready for eHealth	and clinical departments	<i>communication with IT departments, or lack of connection, has resulted in dietitians being very disengaged from the process.</i> ' (Interview 9, Private Practice)
	Focused on role and not seeing the bigger picture	<i>'And that may be for any number of reasons, we are all busy people and we are focused on patient care and we don't see the immediate benefit of our time and effort.'</i> (Interview 6, Hospital)
	Frustration	<i>'I feel there is a huge amount of frustration that we were unable to move things forward and have real meaningful headway into getting and attracting interest within the profession, even though as an industry health informatics has not stopped, in fact it has escalated exponentially, but as a profession our interest has not followed that vein.'</i> (Interview 1, Hospital)
	Generational	<i>'The younger generation has grown up with technology; they expect it to be in their daily lives, so when you suggest ideas that involve electronic systems they are much more ready to use that.'</i> (Interview 2, Industry)
	Lack of enthusiasm or interest	<i>'I do think that because there is very little current interest in the dietetics field about nutrition informatics or not so much current interest, but certainly a lack of enthusiasm.'</i> (Interview 1, Hospital)
	Lack of informatics expertise	<i>'Part of the frustration is, that once this thing has been designed is that you can't go back and re-design, and there are all sorts of rules and barriers. We've had a very frustrating time going back and asking can we start again, and they say sure you can start again, but they aren't making the changes we put forward.'</i> (Interview 6, Hospital)
	Lack of knowledge, awareness and confidence	<i>'I think the fear, lack of understanding, so there is a lot out there; it's not just one thing.'</i> (Interview 7, University/Research)
	Lack of progress	<i>'I feel we are a pretty passive workforce, that we will adopt technology when it is given to us, or we will critique it when it's handed to us. But on a whole I don't think we are well engaged as a profession in this sort of stuff.'</i> (Interview 6, Hospital)
4. Improving eHealth readiness strategies	Collaboration and representation	<i>'I think that if we got involved in some of those key organisations that are involved in nutrition informatics or health informatics that it puts us on the map, it creates a skill level for us that keeps the conversation going. It probably embeds us as a profession within that whole health network, and if we don't do it we'll miss the opportunity altogether or someone will come in and provide it for us, but it will be with their perspective of dietetics which may not be within</i>

		<i>our profession.</i> ' (Interview 1, Hospital)
	Education	<i>'I think that we need to provide more education about what eHealth is; that it's more than just the EHR [electronic health record], which is how eHealth is widely seen by clinical dietitians in hospitals. We need to provide education about existing systems and how they fit in, how they are existing eHealth systems I guess, and also future possibilities.</i> ' (Interview 9, Private Practice)
	Offer incentives	<i>'I do think that because there is very little current interest in the dietetics field about nutrition informatics or not so much not current interest, but certainly a lack of enthusiasm that perhaps we might need some sort of impetus to get us over the hurdle to help bring an awareness or create a profile or create a structure for us as a profession to move forward.</i> ' (Interview 1, Hospital)
	Mentoring	<i>'So I suppose it's a matter of supporting, encouraging, mentoring and building confidence from a professional perspective about a field that was not our primary area of study.</i> ' (Interview 1, Hospital)
	National strategy	<i>'I think DAA [Dietitians Association of Australia] have a role to play here to actually educate, promote and assist dietitians to become better informed about eHealth, what eHealth is, how it impacts us and what the risks are of not embracing it as a profession.</i> ' (Interview 9, Private Practice)
	Organisational leaders	<i>'Obviously for individual dietitians it is very difficult for them to change a whole system or whole approach, but those in positions of leadership are the ones who can help guide, help reassure, help put stepping stones in place to have it all happen.</i> ' (Interview 3, University/Research)
	Nutrition informatics champions	<i>'I do think you need big picture people, holistic people, visionary people in place to get some of the big overarching stepping stones in place, and we need the right people in the right place at the right time.</i> ' (Interview 3, University/Research)
	Supportive environment	<i>'But how do we manage to keep those people together, those people with the view, the vision, the insight and the big picture, how do we connect all of these pieces of a massive spider web together and again I think the professional organisation is one means by which we can do that.</i> ' (Interview 3, University/Research)